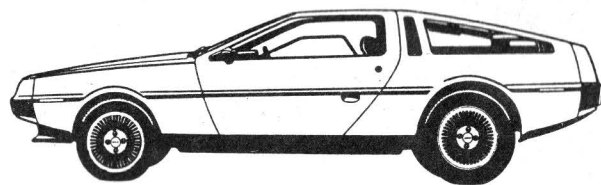


DeLotech



SUMMER 1989

Parts Interchange And Service Tips

Volume: I Issue: I

HELP, NOT HUSTLE

THIS NEWSLETTER IS AVAILABLE TO DELOREAN OWNERS AND THEIR SERVICE SUPPLIERS ON A SUBSCRIPTION BASIS.

DELOTECH, DEDICATED TO HELPFUL, TRUTHFUL, ACCURATE, AND ETHICAL TIPS TO SAVE MONEY, TIME AND EFFORT.

DELOTECH, DESIGNED TO CONCENTRATE ON SIMPLIFIED TECHNICAL ISSUES, LEAVING THE DMC SOCIAL SCENE TO THOSE BETTER SUITED FOR REPORTING ON THOSE ISSUES.

DELOTECH, WITH NOTHING TO SELL BUT THE RESULTS OF NEARLY TEN YEARS OF DMC R&D, VEHICLE SALES, PARTS SALES, AND SERVICE. (PLUS 20 YRS. OF OTHER AUTOMOTIVE PURSUITS.)

DELOTECH, HELP, NOT HUSTLE 12 HOURS A DAY ON THE SUBSCRIBERS PRIVATE ACCESS LINE.

PARTS INTERCHANGE INFORMATION IN EVERY ISSUE.

SUBSCRIPTION FORM AND INCENTIVE BONUSES ARE ELSEWHERE IN THIS PAPER.

BEN BYRD, DELOREAN OWNER'S ADVOCATE.

FUTURE ISSUES OF DELOTECH

OTHER SUBJECTS AS REQUESTED, AS TIMELY, AND AS SUBMITTED (AND VERIFIABLE) BY SUBSCRIBERS

ELECTRICAL:

DRAINS
ALTERNATOR
SHORTS
GROUNDS
IGNITION
FUSE BOX
COOLING FANS

BATTERY
CONNECTIONS
DOOR LOCKS
STOP/TAILLIGHTS
SPARKPLUGS,
CIRCUIT BREAKERS
MODIFICATIONS

BODY:

DOOR SAG,ALIGN
ENGINE COVER
WEATHERSTRIPS
PAINT
WATERLEAKS

STRUTS
PANEL REPAIRS,ALIGN
UPHOLSTERY
KEYS AND LOCKS
SUNSHADES

AIR CONDITIONING:

LEAKS
BLOWER MOTOR
BELTS

IDLER PULLEYS
MODE SWITCH
CONDENSATION

NO START:

HOT
WET
LOGIC TREES

COLD
INTERMITTANT
TESTS

SUSPENSION:

TIRES
BALL JOINTS
LOWERING
STEERING RACK

TRAILING ARMS
CONTROL ARMS
CORROSION
SHAKE AND VIBS

RECALLS:

UPGRADES
INERTIA SWITCH
THROTTLE

FRAME HORNS
BULLETINS
ACCESSORIES,TESTS

TRANSMISSIONS:

MANUAL
LINKAGE
CLUTCH

AUTOMATIC
AXLES & BOOTS
MODIFICATIONS

FUEL SYSTEMS:

PUMP & NOISE
MILEAGE
PERFORMANCE
IDLE CONTROL

MOUNT BOOTS
EMISSIONS
STORAGE,CORROSION
LEAKS,FUMES

ENGINE:

LIFE
TUNING
OVERHEATING

OIL PRESSURE
TURBOS
WATERPUMP

AND MORE WITH INDEXES AND CROSS INDEXES

STEERING SHAKE IS NOT BALL JOINTS

THE DELOREAN HAS A GREATER TENDENCY TO FRONT WHEEL AND TIRE VIBRATION THAN MOST OTHER CARS. THIS IS IN PART DUE TO THE 40/60 WEIGHT DISTRIBUTION. EACH FRONT TIRE IS PLANTED ON THE ROAD WITH ONLY 500# DOWNFORCE (AT REST). MANY OF THE LOW MILEAGE CARS STILL HAVE THE GOODYEAR NCT TIRES WHICH HAVE NYLON IN THEM AND GET FLAT SPOTS WHEN SITTING (WORSE IN COLD WEATHER).

IF YOUR DMC SHAKES AT HIGHWAY SPEEDS IT IS (995/1000) WHEEL AND TIRE ASSY. OUT OF ROUND OR OUT OF BALANCE, PERIOD. ANOTHER CAUSE IS DUE TO BENT REAR AXLE(S) FROM COLLISION OR THE RESULT OF HAVING BEEN CHAINED DOWN BY THE AXLE ON A TRANSPORT OR FLATBED.

LATERAL RUNOUT IS COMMONLY CALLED WOBBLE (SIDE TO SIDE). RADIAL RUNOUT MEANS THAT THE OUTSIDE OF THE TIRE IS NOT THE SAME DISTANCE FROM THE CENTER ALL THE WAY AROUND THE CIRCUMFERENCE. EITHER CONDITION CAN ORIGINATE AT THE HUB, BOLT

CIRCLE, WHEEL, OR AT THE TIRE. TIRE STORES GENERALLY DON'T LIKE TO (UNDERSTATEMENT) CHECK THESE CONDITIONS. IT TAKES TIME, LOGIC, AND DEDUCTS FROM MORE PROFITABLE PURSUITS.

IF YOU WILL CHECK FOR RUNOUT YOURSELF, YOU WILL BE BETTER INFORMED AND PREPARED FOR THIER DIAGNOSIS. JACK UP THE CAR -ONE WHEEL AT A TIME. JUST BARELY CLEAR THE LEVEL PAVEMENT AND BLOCK THE OPPOSITE CORNER WHEEL FRONT AND REAR. HOLD A SMALL BLOCK OF WOOD AGAINST THE GROUND (OR SOMETHING SIMILAR) AND VERY CLOSE TO THE TREAD. ROTATE THE TIRE. FRONT LATERAL RUNOUT SHOULD NOT EXCEED 1/32. FRONT RADIAL RUNOUT CAN BE 1/16. REAR RUNOUT CAN BE TWICE THESE AMOUNTS.

WHILE YOU ARE THERE, CHECK TIRE WEAR AND STEERING LINKAGE. TREAD WEAR THAT IS MORE PRONOUNCED ON EITHER THE INSIDE OR THE OUTSIDE INDICATES A NEED FOR ALIGNMENT. EXCESSIVE WEAR OF THE CENTER TREADS OF

(Continued on page 7)

SPEEDOMETER QUIT?

Speedometer failure is over 100% for DeLorean automobiles. How can anything fail more than 100%? Multiple failures!

The number one failure is the speedometer drive adapter, also called the angle drive adapter. It is located at the left front wheel. If anything else in the drive cable system binds, the angle drive in its original equipment configuration is the weakest link. One of the reasons for binding elsewhere in the system is someone neatly tying the lower speedometer cable to keep it from hanging down below the chassis. That is ok, but tie it with a loose loop or it will chaffe and seize. Current market on speedometer angle drive adapters is about \$89 for original equipment. It is supposedly only common with the Rover 2000. The ratio is 1.25:1.00.

If the angle drive is removed from the car, the car should not be driven because the nut that secures the angle drive also secures the spindle

(stub axle for the front wheel). If you purchase a weatherproofing kit from Kapak in Columbus, Ohio you can get an extra nut and the kit isn't a bad idea for those who live where the streets get messy.

The best way I have found to remove the nut from the drive adapter is with a press. Pulling, wedging or prying the nut from the body of the adaptor usually results in breaking the collar.

Bill's Speedometer Service modifies the original angle drive greatly improving reliability. They are located at: 8725 WATSON ROAD ST. LOUIS, MO 63123 (314) 843-4422

Swedish Auto Service has replacement lower cable and housing assemblies. If only the center cable is broken and not binding, then a standard AC replacement cable (about \$5 and sometimes called the chain) will work even though the original had one end flattened instead of the more standard in the U.S. square end.

DELOTRADE

LISTINGS FOR SUBSCRIBERS

81-DMC AUTOMATIC-BLACK INTERIOR VIN35XX-TURBO,INTERCOOLED,KENWOOD STEREO,HIGH STALL CONVERTER,LOOKS NEW-\$15000 AGENT: SCIENTIFIC AUTOMOTIVE
3502 NW 10 AV
FT.LDDL.,FL 33309
(305)5667033

81 DMC 5SPD.GRAY INTERIOR-12000MI
ALL RECALLS AND MOST UPGRADES DONE ON THIS ONE. AGENT:
SCIENTIFIC AUTOMOTIVE
3502 NW 10 AV
FT.LDDL.,FL 33309

82 DMC 5SPD GRAY INTERIOR WITH TURBO 7000
MILES \$15,000 ALL RECALLS AND SOME UPGRADES
AGENT:
SCIENTIFIC AUTOMOTIVE

BULK RATE
U.S. POSTAGE
PAID
Permit No. 4271
Miami, Florida

SCIENTIFIC AUTOMOTIVE,INC.
3502 N.W. 10TH AVE.
FORT LAUDERDALE, FL 33309

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A tech assist phone number and your personal code number is a major benefit of a Delotech subscription. Responsible contributions are solicited.

OVERHEATING

OVERHEATING IS NOT" SOMETHING YOU HAVE TO LIVE WITH" IN A DELOREAN. YOUR COOLING SYSTEM IS OF SUFFICIENT CAPACITY TO ALLOW PROLONGED IDING (A/C ON OR OFF) EVEN IN THE HOTTEST WEATHER. THERE ARE DOZENS OF REASONS FOR OVERHEATING THAT ARE COMMON TO MOST CARS. OUR FOCUS HERE WILL BE UPON THOSE MOST LIKELY OR UNIQUE TO THE DELOREAN.

ANYTIME OVERHEATING RESULTS IN A COOLANT LOSS OF 2 QT, BLEEDING IS INDICATED. THE BLEEDER VALVE IS BRASS, HAS A 10MM HEX BODY, AND IS LOCATED ON THE SIDE OF THE THERMOSTAT HOUSING. SEE ILLUSTRATION a. AND PROCEED AS FOLLOWS:

1. TOP UP THE COOLANT TANK WITH A 50/50 MIX OF ANTIFREEZE AND WATER. DON'T OPEN THE CAP UNTIL THE SYSTEM HAS COOLED ENOUGH TO RELIEVE PRESSURE AND UNSAFE TEMPERATURES!

2. TURN THE BLEED VALVE 1 TURN COUNTERCLOCKWISE. WAIT UP TO 10 MINUTES FOR COOLANT TO APPEAR. WHEN THE COOLANT STREAM IS 90% AIR FREE CLOSE THE VALVE. IF COOLANT DOES NOT COME OUT, APPLY GENTLE

TANK (PRESSURE TESTER OR EVEN MOUTH ON HAND REALIZING THAT ANTIFREEZE IS POISON).

COOLANT LEAKS ARE COMMON TO MOST VEHICLES, BUT THE DMC HAS 42 HOSE CONNECTIONS - COMPARED TO 8 FOR SOME CARS. HIGH QUALITY 1 1/4 " HOSE IS AVAILABLE FROM MANY AFTER-MARKET SUPPLIERS. DOUBLE CLAMPING WITH ROLLED EDGE HOSE CLAMPS (SUCH AS ZEBRA BRAND) IS RECOMMENDED.

THE RADIATOR HAS PLASTIC END TANKS WHICH,PARTICULARLY ON THE EARLY 81'S ,DO NOT SEAL WELL TO THE CORE. SEVERAL OF THE DMC PARTS VENDORS OFFER METAL TANKED RADIATORS,OR YOUR LOCAL RADIATOR SHOP MAY BE ABLE TO FABRICATE AND INSTALL NEW TANKS FOR YOUR RADIATOR.

ANOTHER PLASTIC DEVICE IN THE COOLING SYSTEM IS THE COOLANT TANK. FAILURE RATE ,SO FAR HAS BEEN IN THE 20 % RANGE. MOST OF THE DMC PARTS VENDORS CARRY METAL REPLACEMENT TANKS.

THE ONES OBTAINED FROM SWEDISH AUTO SERVICE IN SANTA ANNA ARE ATTRACTIVE, WELL MADE, AND HAVE GIVEN TROUBLE-FREE SERVICE.

ALL DMC'S (YOU WON'T OFTEN SEE "ALL" IN THIS NEWSLETTER) SHOULD HAVE THE FAN FAIL RELAY ELIMINATED.

PHOTOCOPY AND SAVE THE RELAY LAYOUT ELSE WHERE IN THIS PAPER-YOU MIGHT WANT TO STAPLE IT TO THE WOODEN LID.

THIS IS PROBABLY OLD NEWS TO MOST OF YOU BUT NO OVERHEATING ARTICLE COULD BE COMPLETE WITHOUT ITS MENTION. THERE ARE AT LEAST 2 GOOD WAYS TO BYPASS THE RELAY:

1. FABRICATE A "PLUG IN" REPLACEMENT USING 3" OF #12 WIRE AND 3 1/4" MALE SPADE CONNECTORS. SEE ILLUS. b.. SOLDER ALL CONNECTIONS! PULL UPWARD ON THE ONLY BLUE RELAY IN THE COMPARTMENT

INSERT THE 3 LEGS OF THE FABRICATED JUMPER INTO THE SLOTS INDICATED, REPLACING THE RELAY.

2.(OR) REMOVE NOT ONLY THE RELAY AS MENTIONED ABOVE, BUT ALSO REMOVE THE RELAY RECEPTACLE BY SLIDING IT TOWARD THE REAR OF THE CAR, PULLING IT UPWARDS ENOUGH TO EXPOSE THE WIRES UNDERNEATH. CUT ALL 5 WIRES AS CLOSE TO THE BLUE RECEPT. AS POSSIBLE. STRIP THE END AND JOIN THE 3 LARGEST OF THESE WIRES BY SOLDERING TOGETHER. INSULATE YOUR CONNECTION WITH A RUBBER VACUUM CAP OR EQUIV. AND ELECTRICAL TAPE.

BOTH RADIATOR COOLING FANS SHOULD COME ON TOGETHER WHEN REQUIRED BY ENGINE TEMPERATURE OR WHENEVER THE AIR CONDITIONING COMPRESSOR IS

ON. CHECK THIS OCCASIONALLY BY FEELING THE AIR FLOW 3" BELOW THE BOTTOM OF THE FRONT OF THE CAR, ABOUT 15" BEHIND THE LEADING EDGE OF THE SPOILER. BE ALERT FOR ANY CHANGE IN SOUND OF THE TWO FANS RUNNING. IF ONLY ONE FAN IS RUNNING, YOU WILL:

1. ENCOUNTER OVERHEATING IN TRAFFIC AND WAITING IN LINES.

2. PREVENT EFFICIENT OPERATION OF THE A/C.

3. RISK BURSTING THE HIGH PRESSURE HOSE. (#100748 \$137+LABOR+ACCUMULATOR+++)

SPRAY WD40 INTO THE HOLES OF THE FAN MOTOR AND TAP LIGHTLY BEFORE ORDERING A REPLACEMENT. ALSO CHECK THE CONNECTIONS NEAR THE MOTORS AS THEY ARE KNOWN TO BE FAULTY. REASSEMBLE WITH DIELECTRIC GREASE

ONCE THE COOLING FANS ARE ON, THEY SHOULD STAY ON UNTIL THE COMPRESSOR TURNS OFF OR THE ENGINE TEMPERATURE GOES DOWN. ALL (THERE IS THAT RARE WORD AGAIN) DMC'S SHOULD HAVE THE COOLING FANS CIRCUIT BREAKER REPLACED WITH A SLIGHTLY HIGHER CAPACITY UNIT THAT ALSO ELIMINATES THE SPADE TYPE CONNECTORS. 40

THREADED STUD WIRING TERMINALS. YOU'LL HAVE TO CUT OFF THE INSULATED FEMALE ENDS, BUT THEY ARE PART OF THE PROBLEM. THE SLIGHT LOOSNESS OF THE SPADE CONNECTORS GENERATES ADDITIONAL HEAT. NEARLY ANY AUTO PARTS STORE CARRIES OR HAS A LISTING ON THIS TYPE BREAKER.

THE FOREGOING PROCEDURES HAVE BEEN SUCESSFULLY TESTED ON THOUSANDS OF DMC'S. MORE ELABORATE FIXES ARE OVERPRICED OVERKILL.

ONE OF THE FIRST THINGS CERTAIN "MECHANICS" DO TO CORRECT OVERHEATING IS TO REMOVE THE THERMOSTAT. THIS ACTION, BY ITSELF, WILL CAUSE THE ENGINE TO OVERHEAT. THE DMC THERMOSTAT, SAME AS VOLVO, HAS A "FOOT" ON THE

BOTTOM THAT BLOCKS THE COOLANT FROM RECIRCULATING THROUGH THE ENGINE WHENEVER THE THERMOSTAT IS OPEN.

ONE OF THE NEXT THINGS THAT CERTAIN "MECHANICS" DO TO CORRECT OVERHEATING IS TO "HOTWIRE" THE FANS SUCH THEY ARE ON WHENEVER THE IGNITION IS ON. THIS ACTION CONTRIBUTES TO DECREASED PERFORMANCE AND ECONOMY AND INCREASED STRESS ON THE ALREADY MARGINAL ELECTRICAL SYSTEMS.

THE IMPORTANCE OF A DEPENDABLE COOLING SYSTEM CANNOT BE OVEREMPHASIZED. IF ONE CONTINUES TO OPERATE AN OVERHEATED ENGINE THE FOLLOWING VERY EXPENSIVE EVENTS ARE VERY LIKELY TO 3OCCUR:

1. HEADS WARP. THEY SHOULD NOT BE MACHINED BECAUSE OF PERPETUATING CROOKED CAM JOURNALS, ALTERED VALVE TIMING, A MISMATCHED GASKET SURFACE AT THE ROCKER COVER, AND SEVERAL OTHER REASONS. ALUMINUM HEADS CAN ,HOWEVER, FREQUENTLY BE STRAIGHTENED BY AN AUTOMOTIVE MACHINE SHOP. NEW HEADS ARE OVER \$800; THE EASY SIDE TAKES TWO DAYS

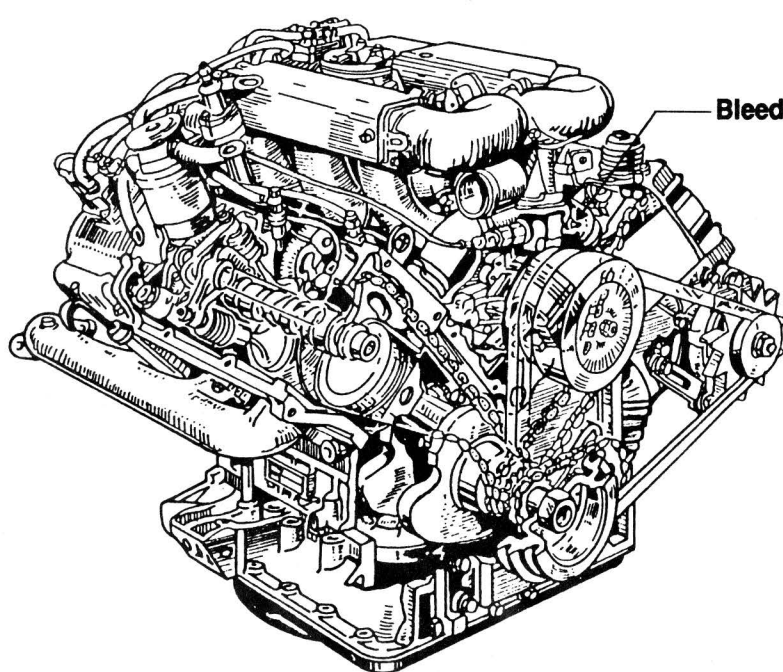
2. THE ENGINE BLOCK CAN WARP TOO. THE BORES EXPAND PUSHING THE CENTER BOTTOM OF THE BLOCK DOWNWARD. IF IT GETS THIS BAD, REPLACE THE ENGINE. YOU CAN SHOP MORE THAN ONE SOURCE FOR THIS MAJOR EXPENDITURE.

3. THE AUTOMATIC TRANSMISSION CAN BE INJURED BY THE OVERHEATING OF THE ENGINE.

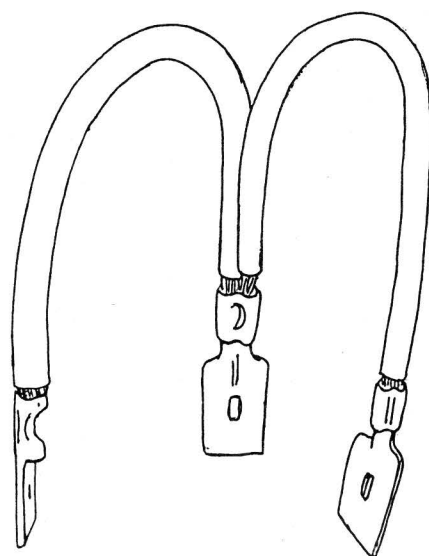
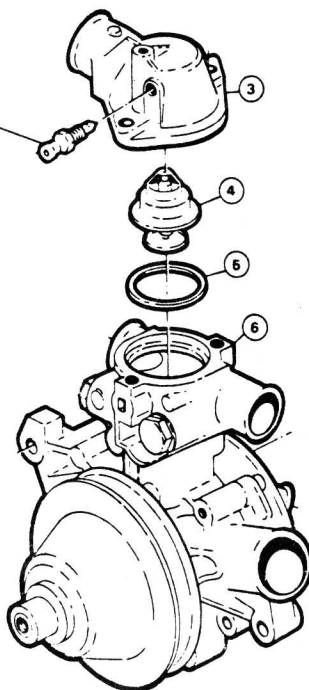
4. THE THERMOSTAT, TEMPERATURE SENDING UNIT, AND THE OTTERSTAT (THE SWITCH THAT TURNS ON THE COOLING FANS) ARE FREQUENTLY HEAT DAMAGED IN OVERHEATING.

5. PLASTIC PARTS IN THE TIMING CHAIN TENSIONERS MELT BLOCKING OIL FLOW CAUSING A NOISEY ENGINE.

**THE BOTTOM LINE
(WHICH THIS IS)
IS DO NOT OVERHEAT**



Bleeder Valve



DELOREAN OWNERS SUSPICIOUS

It appears that most of the technical advice available for DMC owners is designed to sell parts and rather than to inform and to save time and money. Understandable perhaps, when one considers the considerable conflict of interest that exists when salespeople with just enough knowledge to "SNOW" the owners are providing the "ADVICE". Most DMC owners simply haven't the time (or inclination) to become "TOTAL EXPERT". Further, the experience gained from repairing even 25 or so DMC's in one area does not provide a broad enough statistical base to justify some of the "buy now" scare tactics selling employed by some major DMC parts suppliers.

To avoid falling prey to aggressive marketing and predatory business practices, it will be necessary to know at least as much as the unethical seller. It takes an expert to be able to recognize an expert, or

a charlatan.

Many of the parts being sold to correct problems are overpriced overkill. Consider the following examples:

1. \$95+ For a steel clutch line kit that can be made of ordinary brake tubing for about \$13.

2. \$145 For a "Relay Kit" sold to prevent fires that ignores the most frequent causes for this extremely rare event. Also sold to correct a hot fuse box—ridiculous!

3. \$492.75 For a part that lists at \$258 at Renault.

4. A shield to correct fuel pump noise that usually doesn't work because that source of heat is but a fraction of the problem.

5. Original equipment speedometer angle drive adapters that will fail just like your first three did, or that are 12.5% Off in ratio.

6. Stainless steel cleaners and sealers that don't really work. The best of the lot still streaks in the

rain.

7. Ball joints that are being predicted to fail at 60,000 miles.

Get your tech assist from someone who knows so much about your DMC that he isn't afraid to share it. (Nearly 10 years- factory, field operations and specialized DMC shop)

Get your tech assist from someone who isn't trying to sell you parts. (Divestiture should be complete within 60 days)

Get your tech assist from someone who is mechanically brilliant, but has taught automobile mechanics in vocational school and dealership mechanics as continuing education. (No unnecessarily technical terms unless you want that)

Get your tech assist from someone who repairs John Z. Delorean's partner's Delorean. We have been promised an interview when the british government judgement has been appealed/ resolved.

Get your tech assist from someone who repairs Sol Shenk's (president, consolidated industries) Delorean. (He has owned 1300+)

Get your tech assist from someone who is available 12 hours a day to save you money and keep your DMC on the road! (It's my living)

Get your tech assist from someone who wants to talk about almost anything that you do with your DMC. (Why reinvent the wheel)

Get your tech assist from Ben Byrd, pres., Scientific Automotive, Turbotown, Turbo Wholesalers, and DeLotech the technical newsletter to save you time and money. Fill out the form and mail or call now to subscribe. (305) 566-7033

Make it a two year subscription within 14 days of the postmark and in addition to saving \$10 you will receive a free sample of the cleaner you've been looking for, "Delorean Dust"!

5 SPEED - CLUTCH

THE ORIGINAL EQUIPMENT DMC CLUTCH IS NOT QUITE EQUAL TO THE TASK. THE MOST FREQUENT

1. CLUTCH WON'T COMPLETELY RELEASE ALTHOUGH DEPRESSED FULLY TO THE FLOOR-ESPECIALLY AFTER THE ENGINE HAS BEEN RUNNING FOR AN HOUR OR SO IN HOT WEATHER. THERE WAS A FACTORY "FIX" ON THIS PROBLEM THAT CONSISTED OF AN ADJUSTABLE INTERMEDIATE LINK RIGHT OVER THE CLUTCH PEDAL. A FIELD FIX WHICH EMPLOYED THE SAME THEORY ADDED LENGTH TO OR MADE ADJUSTABLE THE CLUTCH MASTER CYLINDER PUSH ROD. THESE FIXES RESULTED IN MANY NEEDLESS CLUTCH FAILURES.

THE REAL CULPRIT IS THE PLASTIC HYDRAULIC TUBE THAT TRANSMITS THE PRESSURES GENERATED IN THE MASTER CYLINDER TO THE SLAVE CYLINDER. THIS TUBE IS ROUTED THROUGH THE SAME "TUNNEL" AS THE HOT ENGINE

COOLANT, BOUND FOR THE RADIATOR, AND THE HIGH PRESSURE SIDE AIR CONDITIONING HOSE. THE

PLASTIC PLIABLE SUCH THAT THE ENERGY PUT INTO THE MASTER ONLY SWELLS THE TUBE-NOT YIELDING FULL TRAVEL AT THE SLAVE CYLINDER.

THERE ARE A COUPLE OF EQUALLY EFFECTIVE FIXES BOTH WITH ADVANTAGES AND BOTH WITH DRAWBACKS. BOTH INVOLVE REPLACING THE PLASTIC LINE WITH ONE THAT DOESN'T DISTEND UNDER PRESSURE. SEVERAL OF THE DMC PARTS SUPPLIERS OFFER A BRAIDED STAINLESS FLEXIBLE HOSE THAT IS RELATIVELY EASILY INSTALLED. ITS INITIAL COST IS AROUND \$95. THERE IS AN OCCASIONAL REPORT OF THE PLASTIC INSIDES OF THE HOSE DETERIORATING.

THE LOWER INITIAL COST SOLUTION IS MORE DIFFICULT TO INSTALL. TWO 60" LENGTHS OF 1/4" STEEL FLEXIBLE BRAKE TUBING

JOINED BY A 1/4" FLARE TO FLARE COUPLING CAN BE ATTACHED TO THE 6mm SHORT LENGTHS OF

MASTER AND SLAVE CYLINDERS VIA 1/4" COMPRESSION UNIONS AFTER THE HOSE BARBS ARE CUT OFF. MAKE A LOOP AT THE TRANSMISSION END TO BETTER ABSORB TRANSAXLE MOVEMENTS. THIS MATERIAL HAS A PROVEN, VERIFIABLE RELIABILITY.

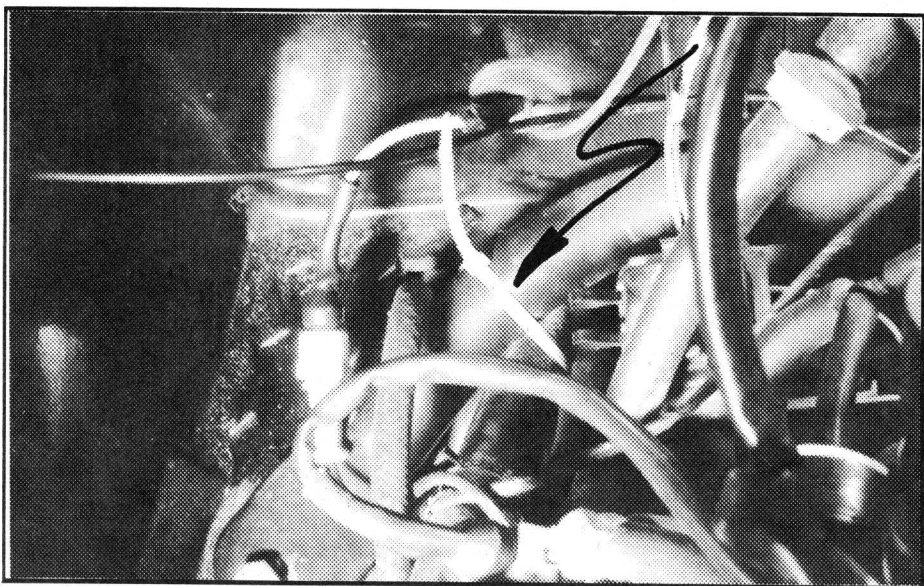
2. SLIPPAGE UNDER ACCELERATION. ONCE THE DMC CLUTCH STARTS TO SLIP, IT WILL GENERALLY ONLY GET WORSE. SINCE THE LABOR COSTS FOR REPLACEMENT ARE TYPICALLY ABOUT EQUAL TO PARTS COST, IT IS A GOOD IDEA TO REPLACE NOT ONLY THE DISC BUT ALSO THE PRESSURE PLATE AND THE CLUTCH RELEASE (THROW-OUT) BEARING. TAKE A VERY GOOD LOOK AT THE PILOT BEARING AND THE ENGINE REAR MAIN BEARING OIL SEAL WHILE YOU ARE THERE. IF USING A

STOCK TYPE REPLACEMENT PRESSURE PLATE, MACHINE OFF THE RAISED FRICTION AREA OF THE

CALLED FOR IN MOST SERVICE MANUALS; IT IS GENERALLY IGNORED. DO, HOWEVER, USE (BLUE) THREADLOCKER LOC-TITE ON THE BOLTS AND ADHERE STRICTLY TO THE TORQUE SEQUENCE AND SPECIFICATIONS. CHECK THE ENDS OF PRESSURE PLATE FINGERS TO INSURE THAT THEY ARE IN THE SAME PLANE; IF NOT CHATTER ON ENGAGEMENT WILL RESULT. USE AN APPROPRIATE CLUTCH ALIGNMENT TOOL AND DO NOT ALLOW THE TRAN-SAXLE TO "HANG" IN THE DISC AT ALL.

THERE ARE HIGH PERFORMANCE PRESSURE PLATES BY CENTER-FORCE AVAILABLE FROM MOST OF THE DMC PARTS SUPPLIERS. I RECOMMEND THESE UNITS FOR HARD DRIVING AND HOPPED UP DMC'S.

SAVE OVER \$200-WITH ONE TIE WRAP



ON MOST DELOREANS THE HIGH PRESSURE AIR CONDITIONING HOSE RUBS AGAINST THE EDGE OF THE HEX FITTING ON TOP OF THE FUEL FILTER. THIS CONDITION CAN BE CORRECTED BY SECURING THE HOSE TO THE REAR BODY CROSS BRACE. IF HAS ALREADY "POPPED", A SLICE CAN BE INSTALLED RATHER THAN REPLACING THE ENTIRE HOSE. WHENEVER YOU HAVE AN AIR CONDITIONING REPAIR THAT REQUIRES OPEN-

ING THE SYSTEM, THE ACCUMULATOR SHOULD ALSO BE REPLACED. THERE ARE TWO ACCUMULATORS USED- ONE HAS A STUB WITH FITTING ON THE BOTTOM; THE OTHER DOES NOT. WHEN ONE REPLACES THE ACCUMULATOR ON A DMC, NOW THAT THEY ARE ALL AT LEAST 7 YEARS OLD, IT WOULD BE PRUDENT TO INSPECT/REPLACE THE ORIFICE TUBE. MORE ON THIS IN A SUBSEQUENT ARTICLE DEVOTED TO A/C.

AUTOMATIC TRANSMISSION TROUBLESHOOTER

THE AUTOMATIC UPSHIFT AND DOWNSHIFT OF THE DMC AUTOTRANSAXLE (SAME AS RENAULT R-30) IS CONTROLLED BY A COMPARATOR/GOVERNOR WHICH IS USUALLY JUST CALLED A COMPUTOR. THERE ARE TWO SOLENOIDS INSIDE THE TRANSMISSION. CURRENT PASSES THROUGH BOTH TO GET LOW GEAR; THROUGH ONLY ONE TO GET SECOND.

THE "COMPUTOR" GETS ITS INFORMATION ABOUT VEHICLE SPEED FROM A GENERATOR WHICH IS GEARED DIRECTLY FROM THE OUTPUT SHAFT OF THE TRAN- SAXLE. IT GETS ITS INFO ABOUT ACCELERATOR POSITION FROM A VARIABLE RESISTOR ATTACHED BY CABLE TO THE THROTTLE SPOOL ON THE REAR OF THE ENGINE. SO, YOU CAN SEE THAT WHEN THE DRIVER WANTS TO GO FASTER AS INDICATED BY THE ACCELERATOR, THE COMPUTOR CAN DELAY THE UPSHIFT SIGNAL TO THE SOLENOID(S) LETTING THE ENGINE WIND OUT FURTHER, GETTING MORE POWER RELATIVE TO VEHICLE SPEED.

SYMPTOMS OF COMPUTOR FAILURE INCLUDE:

1. FAILURE TO DOWNSHIFT IE... VERY LAZY ACCELERATION, NO SHIFTS ALL THE WAY UP TO HIGH- WAY SPEEDS ALTHOUGH TA- CHOMETER READINGS ARE NOR- MAL FOR THOSE SPEEDS (2500). THIS AND OTHER COMPUTOR RELATED SYMPTOMS CAN OCCUR ALL THE TIME, INTERMITTANTLY, OR ONLY WHEN THE TRANSMIS- SION IS HOT OR COLD. WIRING OPEN CIRCUITS CAN ALSO CAUSE THIS CONDITION. THESE OPENS MOST OFTEN ARE FOUND AT FUSE #13, AT THE RED CONNECTOR UNDER THE COIL COVER, AND/OR AS A RESULT OF UNSECURED WIRING WHERE IT PASSES OVER THE EXHAUST CROSSOVER PIPE.
2. UNEXPECTED DOWNSHIFTS IE... A FEELING THAT THE CAR HAS SHIFTED TO NEUTRAL WHILE TRAVELLING AT A STEADY SPEED. AGAIN, HOT, COLD OR INTERMIT- TANT

JERKING BACK AND FORTH BETWEEN GEARS IS USUALLY WIRING RELATED AT THE RED PLUG OF THE BULKHEAD DISCON- NECT (UNDER THE COIL COVER IN THE ENGINE COMPARTMENT).

DELAYED OR PREMATURE UP- SHIFTS AND DOWNSHIFTS CAN BE ADJUSTED VIA THE CABLE LENGTH EITHER AT THE COMPUTOR OR AT

THE THROTTLE SPOOL (WHICH IS A LOT EASIER TO GET TO ON A ROAD TEST). THIS CABLE IS SUBJECT TO SEIZURE, ESPECIALLY WHEN NOT SECURED TO PROVIDE ADEQUATE CLEARANCE TO THE EXHAUST CROSSOVER PIPE.

TRANSMISSION SLIPPING AND NO DRIVE AT ALL ARE NOT COMPUTOR SYMPTOMS. MORE ON THESE LATER IN THIS ARTICLE.

CAUSES OF COMPUTOR FAILURE INCLUDE:

1. VOLTAGE SPIKES FROM LOOSE CONNECTIONS AND GROUNDS AND DEAD BATTERY "JUMPING" AND CHARGING.
2. INTERNAL DESIGN DEFICIEN- CIES INVOLVING THE QUALITY OF COMPONENTS AND FAILURE TO ACCOMODATE VOLTAGE VARI- ATIONS.

IF IT DOES BECOME NECCESARY TO REPLACE THE COMPUTOR (DMC #104218 @ \$492.75), SEE YOUR RENAULT DEALER AND ORDER #T1585496 @ \$258.68. (SEND ME 1/4 OF THE SAVINGS, AS A TWO YEAR SUBSCRIPTION)

A DIFFERENT MECHANISM CON- TROLS THE HARSHNESS OF THE SHIFT. ENGINE VACUUM IS RE- DUCED WHEN THE DRIVER HAS THE ACCELERATOR OPEN FURTHER THAN IS REQUIRED TO MAINTAIN A STEADY SPEED (ASSUME LEVEL ROADWAY). THIS DEVICE IS CALLED THE VACUUM MODULA- TOR. MANY AUTOMATIC TRAN- SMISIONS USE THIS VACUUM READING TO ASSIST IN THE DETER- MINATION OF SHIFT POINTS, BUT THE DMC USES THE VACUUM ONLY TO DETERMINE THE CLUTCH APPLY PRESSURES. THE DMC MODULA- TOR IS ADJUSTABLE. PROPER SETTING REQUIRES USE OF A 300 PSI HYDRALIC PRESSURE GAUGE. MOST STANDARD 1/8" IPS STREET ELLS WILL NOT SCREW INTO THE PRESSURE TEST PORT OF THE DMC AUTOTRANSAXLE UNLESS YOU RETHREAD THE MALE END ALL THE WAY UP WITH A TIGHTENED DIE. IT MAY TAKE A COUPLE OF PASSES WITH THE DIE AND IT IS EASIER IF YOU USE A BRASS FIT- TING.

IF ABRUPT ACCELERATION MOVES THE CAR ABOUT 3', THEN IT SEEMS TO GO OUT OF GEAR, THE ENGINE REVS, THEN IT COMES BACK IN AGAIN WITH A SLAM, CHANCES ARE THE FLUID

LEVEL IS LOW. (THE REASON FOR THE UNDERLINED ITEM IS THAT THERE IS A SIMILAR CONDITION EXHIBITED WHEN THE FUEL PICKUP INSIDE THE TANK IS LOOSE, BUT THE ENGINE DOESN'T REV WHEN THAT HAPPENS). LOW FLUID MEANS: a) IT HAS ALWAYS BEEN LOW, OR b) THERE HAS BEEN A LEAK. DEXRON II DOESN'T NOR- MALLY EVAPORATE. SOME OF THE FLEXIBLE RUBBER HOSES THAT CONNECT THE TRANS TO THE COOLER INSIDE THE RADIATOR COOLANT RETURN TUBING LEAKED EVEN WHEN THEY WERE NEW. NOW THAT THEY ARE IN THEIR 10TH YEAR, AN EXTRA CLAMP AT THE CRIMPED ENDS MAY NOT BE ENOUGH. THE SHIFT CABLE (DMC # 100558 @ \$69.10) LEAKS MORE AS IT AGES. IT IS NECESSARY TO DROP THE TRANS PAN TO REINSTALL THE NEW CABLE. THE JOB ALSO REQUIRES AN 11/16 OR 17mm "CROWSFOOT" WRENCH AND IS A PAIN. SCREW THE CABLE INTERNAL THREADED SLEEVE ALL THE WAY IN TO ACHIEVE THE BEST LINKAGE ADJUSTMENT LATER. WHENEVER THE PAN IS REMOVED, REFILL WITH 2 QTS. OF DEXRON II. THEN CHECK LEVEL IN PARK WITH THE ENGINE RUNNING AND FILL TO THE COLD LINE.

WHEN THE CAR FEELS AS IF IT WERE IN NEUTRAL & WON'T MOVE, STEP ONE IS TO CHECK THE FLUID LEVEL AND COLOR. IF LEVEL IS LOW, ADD DEXRON AND CHECK FOR LEAKS. IF MORE THAN A QUART IS ADDED, CAR MAY NOW MOVE. IF FLUID IS MORE BROWN OR BLACK THAN THE RED THAT IT SHOULD BE, INTERNAL REPAIRS MAY BE INDICATED. ROLL THE CAR TO INSURE THAT THE BRAKES AREN'T LOCKED.

IF NEITHER LOW OR DISCOLORED FLUID IS FOUND, LISTEN FOR GRINDING OR RUBBING NOISES WHEN IN GEAR AND ATTEMPTING TO MOVE THE CAR. DEVISE A SAFE WAY TO PUT THE CAR IN GEAR WHILE BEING KEPT FROM MOVING SUCH THAT YOU CAN LOOK UNDER THE CAR AT BOTH OF THE OPEN AND VISIBLE AXLES TO BE CER- TAIN THAT ONE OF THEM IS NOT TURNING.

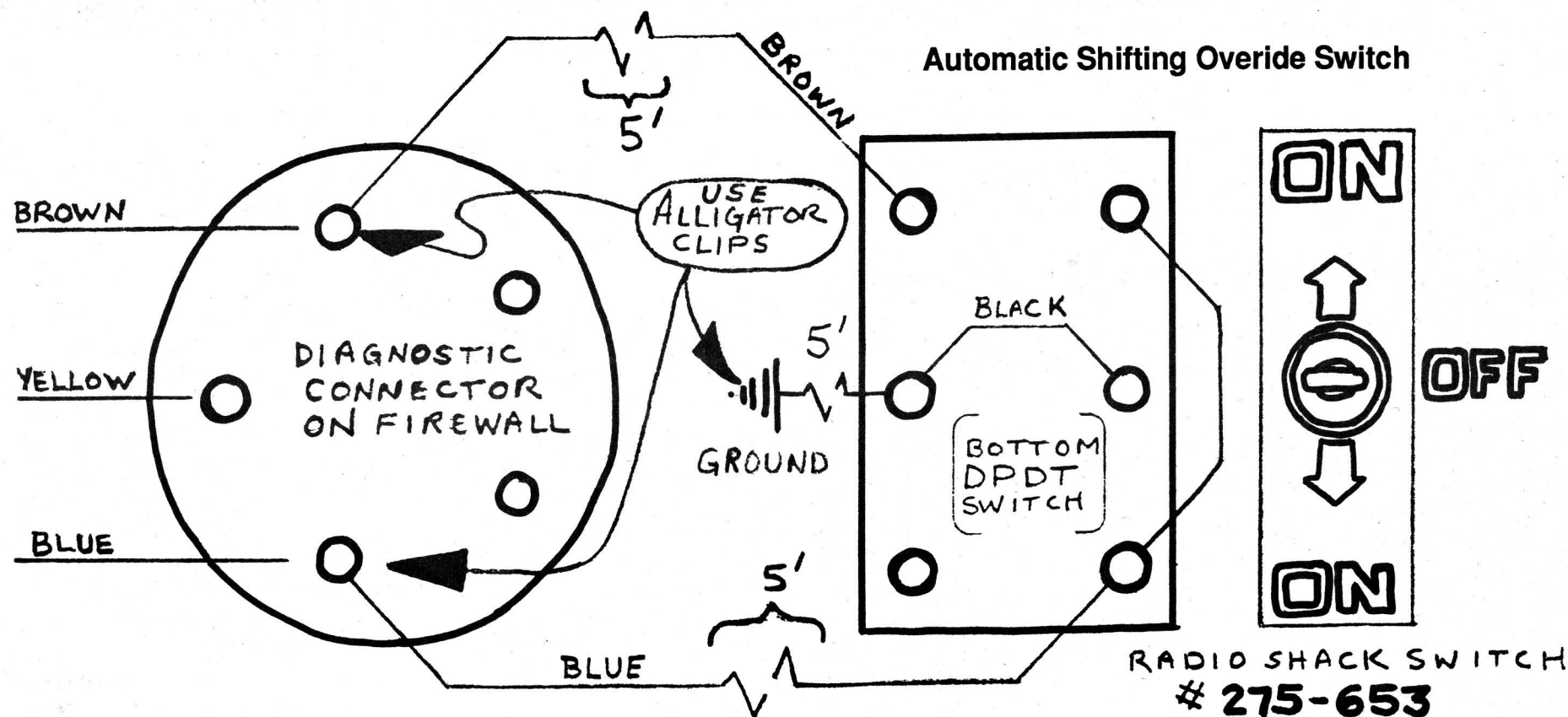
IF IT IS TURNING WITHOUT TURN- ING THE WHEEL, IT IS LIKELY THAT YOU HAVE A STRIPPED STUB AXLE AND HUB. THE NUT ON THE STUB AXLE END SHOULD HAVE BEEN

TORQUED TO 220 FTLB.. IT DIDNT FAIL SUDDENLY, IT GAVE WARN- ING IN THE FORM OF NOISE AND A LOW BRAKE PEDAL UNDER NOR- MAL OPERATING CONDITIONS THAT WOULD PUMP UP AND BE FINE WHEN SITTING STILL.

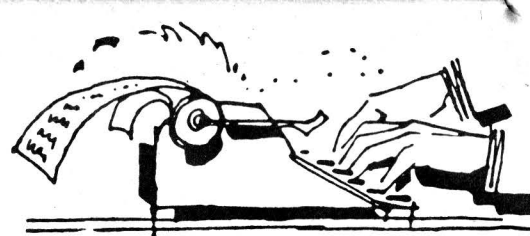
IF NEITHER AXLE IS TURNING, INTERNAL REPAIRS ARE LIKELY. THE UNIQUE DESIGN AND CLOSE TOLERANCES MAKE IT A GOOD IDEA TO TAKE THE JOB TO SOME- ONE FAMILIAR WITH THAT PAR- TICULAR TRANSAXLE. IF THIS IS NOT POSSIBLE, HAVE THE TRANS- MISSION SPECIALIST CONTACT DELOTECH OR OTHER EXPERT FOR ASSISTANCE WITH TECHNIQUES AND TOOLS. ALTHOUGH THE CLUTCH PACKS, FRICTION MATERI- ALS AND STEEL PLATES ARE COMMON WITH SOME OF THE EUROPEAN G.M. TRANSMISSIONS, THE SPECIAL TOOLS TO MEASURE THE INTERNAL TOLERANCES ARE REALLY SCARCE IN THIS COUNTRY. FURTHERMORE, IT HAS BEEN MY EXPERIENCE THAT 80% (OR MORE) OF THE PRODUCTIVITY MINDED FLAT-RATE ARTISTS IN TRANSMIS- SION REPAIR WILL NOT CHECK TOTAL TRANSAXLE STACK HEIGHT AND PACK CLEARANCES BECAUSE THEY ARE INDIRECT, TIME CON- SUMING MEASUREMENTS THAT REQUIRE MORE THAN A LITTLE MATH ACCURACY. EVERY SINGLE DMC THAT I HAVE DONE HAS REQUIRED .020" OR MORE TO BRING IT INTO SPECS. DOES THAT SUG- GEST SOMETHING?

IF IT IS NECCESARY TO REMOVE THE TRANSAXLE AND YOU ARE LESS THAN HAPPY WITH THE SLOW "TAKEOFF" OF THE DMC, THEN A CURE IS AVAILABLE THAT WON'T PERCEPTIBLY ALTER YOUR EMMIS- SIONS. INCREASE THE STALL SPEED OF YOUR TORQUE CONVER- TOR BY SENDING IT TO T.C.I. TURN AROUND TIME IS TERRIBLE BUT THEIR ENGINEERING AND CRAFTS- Manship CANNOT BE DENIED. THE HIGH STALL MAKES EVEN MORE HEAT. HEAT IS THE ENEMY OF ANY AUTOMATIC TRANSMISSION. THE DMC RUNS A LITTLE HOTTER THAN MOST. PLEASE... INSTALL A SUPLE- MENTAL COOLER IN SERIES WITH THE ORIGINAL-WHETHER OR NOT YOU GO FOR THE HI STALL OR NEED OTHER TRANSAXLE REPAIRS. NEARLY ALL OF THE DMC PARTS SUPPLIERS CAN PROVIDE A KIT FOR LESS THAN \$80.

by Ben Byrd pres. DeLotech



PUBLISHER PROFILE



Ben Byrd has spent a lifetime in automotive pursuits. From the early days of drag racing as a hobby, through 30 years of responsible engineering, production, and management positions with Chrysler, DeLorean, and his own firm, Scientific Automotive, Inc..

Mr. Byrd was among the first 15 employees and the last 3 of Delorean Motor Company of North America. His assignments included initial product

evaluation team, manufacturing liaison in Belfast, and district manager in the southeastern states.

Since late in 1982 he has been the president of a parts and service facility devoted specifically to DMC's. He is a Mensa and a nationally certified mechanic in all eight categories.

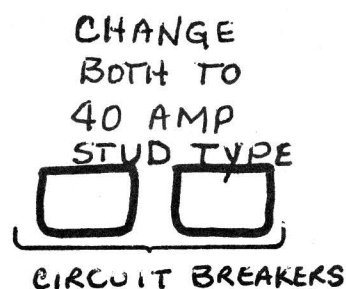
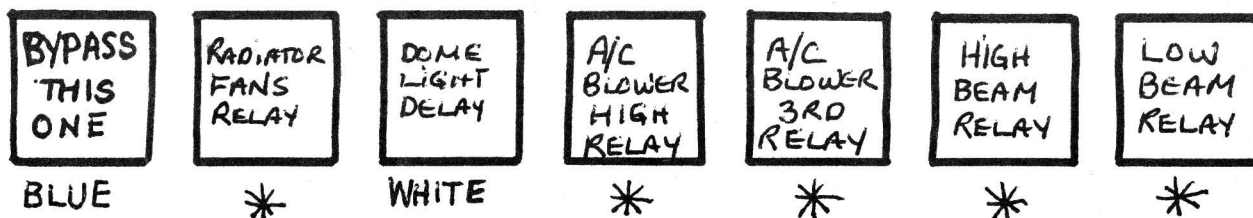
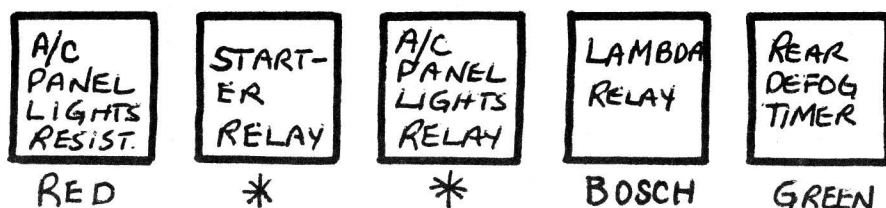
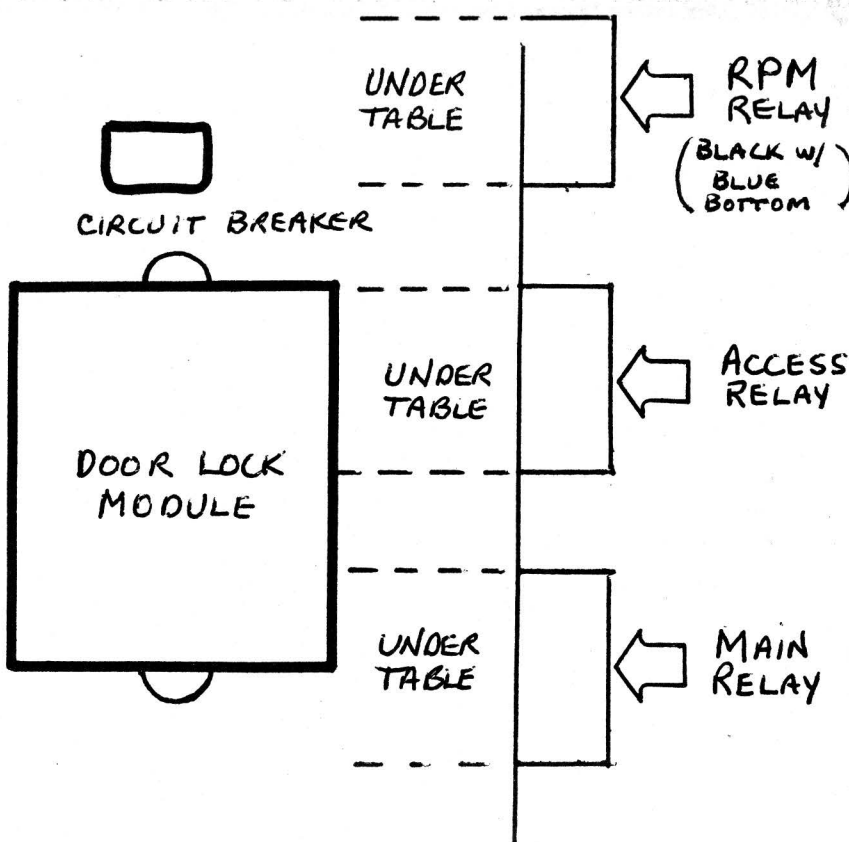
RELAY COMPARTMENT BOTTOM OF MAP IS FRONT OF CAR Save This Map!

Cut out or photocopy. It is the right size to staple to the triangular relay compartment cover behind the passenger seat, under the carpet of the package tray.

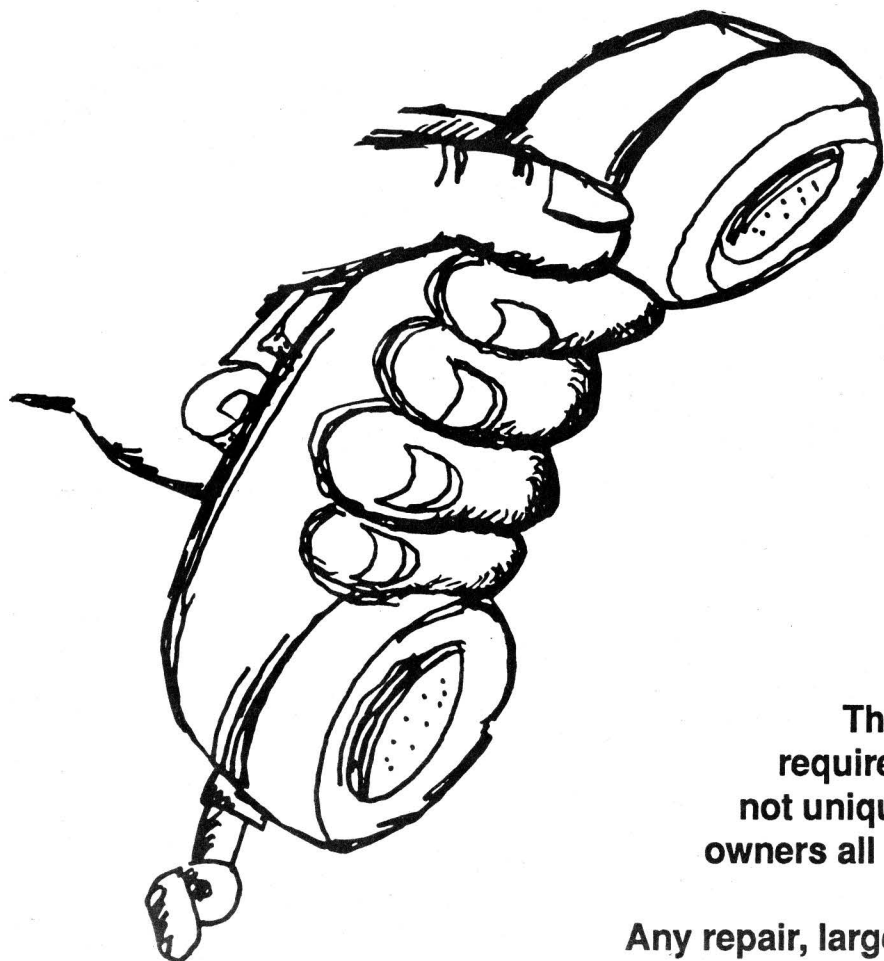
It will be useful for:
Technical assistance by phone
Accessory installation
General troubleshooting

The next issue of DeLotech will have
a map of the other side.

Copywrite DeLotech
Oakland Park, Fl.



* = SAME PART NUMBER



Technical Assistance?

WHY REINVENT THE WHEEL?

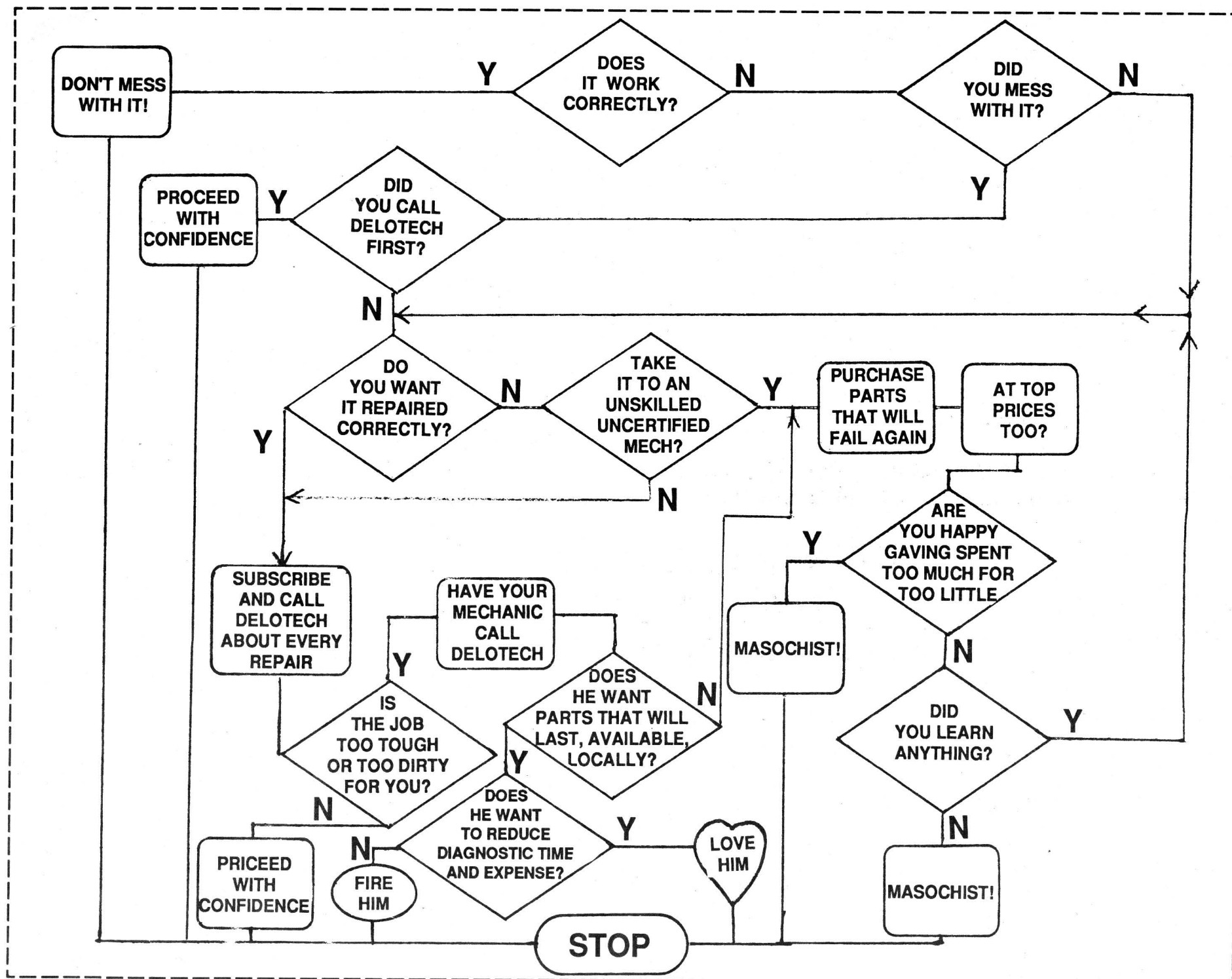
The "obvious" repair procedure is frequently not the effective repair procedure.

The DeLorean automobile is a unique vehicle. They require specialized knowledge and skills. BUT, they are not unique when compared to other DMC's. We DeLorean owners all have the same experiences, subject to statistical, geographical, and build date variations.

Any repair, large or small, can usually be made better than new. Through the experiences of having successfully corrected over 100,000 DMC difficulties during the last 8 1/2 years it has been possible to compile a vast array of service "tricks" that you can share.

Don't fix the same problem more than once.

SUBSCRIBE TO DELOTECH AND GET 12 HOUR A DAY TECH-ASSIST
FOR YOU OR YOUR MECHANIC
PLUS TIME AND MONEY SAVING TIPS IN EVERY FACT-FILLED ISSUE



HARD STEERING A DELOREAN CHARACTERISTIC

When the Deloreans were brand new in the dealer's showroom, a frequent sales objection was the difficulty in steering. DMC's do steer somewhat harder than most cars. I receive inquiries about once a month for installing power steering

Now that the cars are getting some age on them there are several components that can increase steering effort:

a. There are four grease fittings, one on each ball joint. I occasionally find vehicles that are total stranger to a grease gun.

b. The rubber "convoluted gators" (we call them boots) do sometimes leak the lubricant from the steering rack.

They are located at both ends of the steering rack. If the boots are split replace them. Refill the rack by either pulling the boot away from the housing or by removing

the plate from the top of the rack near where the steering shaft goes in. Use 90W gear lube. If you feel that your steering is extraordinary hard, check the level. Maybe when or if the boots were changed before the technician did not refill the rack , or allowed contaminants to enter the rack mechanism.

It should run out when you loosen the clamp and pinch the small end of the boot.

c. Worn tires increase steering effort. Tires sitting up on tall tread slip and squirm more easily than during the last half of the tread life.

d. Tire pressure makes a big difference in steering effort. Higher pressures reduce turning resistance. Recommended pressures are 24 psi front and 30 psi rear as measured cold. Increases of more than 2psi are not advisable

for normal street driving. Whatever you add, add to all four as the 35/65 weight distribution needs the proportional traction.

If you found rusty water when you checked the level of the fluid in the steering rack, or if there is over 1/16" of "slack" then it is time to consider replacement or rebuilding

of the steering rack.

The internal parts are common with the Peugeot. Hoosier Brake and Steering of Indianapolis, Indiana rebuilds the racks at a reasonable price.

New units are available at most any of the DMC parts suppliers.
B. Byrd

STEERING SHAKE

(Continued from page 1)

THE RIGHT REAR ORIGINAL NCT TIRE IS NORMAL FOR THE DMC. WEAR ON BOTH OUTSIDE TREADS INDICATES CHRONIC UNDER-INFLATION OR "VIGOROUS" CORNERING. I RECOMMEND NO MORE THAN 1/8 TOTAL TOE ON A "HEALTHY" FRONT END. SCALLOPED, CUPPED OR OTHER IRREGULAR SHAPED FLATS AND DENTS IN THE TIRE SURFACE INDICATE AN OUT OF BALANCE, OUT OF ROUND, OR LINKAGE SLACK. TURN THE WHEEL, AS IF STEERING, BY GRASPING THE FRONT AND BACK OF THE TIRE- IF MORE THAN 1/32 SLACK WITHOUT THE OTHER TIRE ALSO "STEERING" SEE WHY! USUAL REASONS INCLUDE STEERING RACK OR WHEEL BEARINGS. TIE ROD ENDS, CONTROL ARM BUSHINGS AND BALL JOINTS HAVE HELD UP VERY WELL.

YOU HAVE BEEN GREASING BALL JOINTS HAVEN'T YOU? THE UPPER BALL JOINTS GREASE MUCH MORE EASILY (IE...WITHOUT REMOVING THE WHEELS) IF YOU REPLACE THE STRAIGHT FITTINGS WITH 45 DEG..

WE HAVE BEEN STICKING TO THE ORIGINAL TIRE SIZES (195HRorVR60x14 & 235HRorVR60x15) AND THE RECOMMENDED PRESSURES OF 24FR & 30 RR. BECAUSE THESE IMPORTANT HANDLING FACTORS WERE VERY CAREFULLY DETERMINED THROUGH CONTROLLED TESTING BY EXPERTS.

TIRE WEAR AND HANDLING AND HIGH SPEED STABILITY ARE ALL ENHANCED BY LOERING THE FRONT END ABOUT 1 1/2 INCHES AT THE FRONT WHEEL WELL. THIS IS EASILY ACHIEVED BY CUTTING ONE COIL FROM THE SPRING WITH AN ABRASIVE CUT-OFF WHEEL (NOT A TORCH). NEVER MIND THAT IT LOOKS BETTER TOO! FOUR HOURS WORK WITH THE RIGHT TOOLS.

AS A YOUNG PERSON I SPENT A LOT (READ WASTED)OF MONEY TRYING TO GET SOMEONE ELSE TO MAKE MY CARS ROLL SMOOTHLY.

NOW I CHECK MY OWN TO BE ABLE TO GET THE JOB DONE.
Ben Byrd

LOWERING DELOREANS

TIRE WEAR, HANDLING, AND HIGH SPEED STABILITY ARE ALL ENHANCED BY LOWERING THE FRONT END ABOUT 1 1/2 INCHES AT THE WHEEL WELL.

THIS IS EASILY AND ECONOMICALLY ACHIEVED BY CUTTING ONE COIL FROM THE SPRING WITH AN ABRASIVE CUT-OFF WHEEL (NOT A TORCH). CONTOUR THE END WHERE YOU CUT TO MATCH, AS CLOSELY AS POSSIBLE, THE ORIGINAL AND POSITION THE END AT THE BALL JOINT .

A BONUS IS THAT THE CAR LOOKS BETTER TOO! FOUR HOURS WORK WITH THE RIGHT TOOLS.

DELOTECH SUBSCRIPTION FORM

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PLUS TIME AND MONEY SAVING TIPS IN EVERY FACT FILLED ISSUE

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FILL OUT THIS FORM OR CALL (305) 566-7033 OR SEND A CHECK FOR \$30 1YR. / \$50 FOR 2YR.
TWO YEAR SUBSCRIBERS GET A FREE SAMPLE OF THE DMC CLEANER THAT YOU'VE BEEN WAITING FOR.

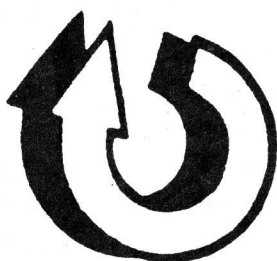
SCIENTIFIC AUTOMOTIVE, INC.
3502 N.W. 10TH AVE.
FORT LAUDERDALE, FL 33309
(305) 566-7033

TECHNICAL SUBJECTS THAT YOU WOULD LIKE TO HAVE COVERED:

By return call _____

In the newsletter _____

Scientific
Automotive



TurboTown

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CALL FOR SAVINGS ON USED BODY PARTS

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DeLorean Frame	\$ 750
Reconditioned Auto Trans	1500
Like New Mufflers	40 ea.
Sets of Seat Covers	200 ea.
Headliners, Recovered Exchg.	35 ea.
Turbo Kit	900
Reconditioned Brake Calipers Xchg.	80 ea.
Air Cond. Evaporators (list \$254)	150
Air Cond. Condensors (list \$373)	200

Mention This Ad To Get This Discount Schedule on All New Parts in Stock

\$100 ⁰⁰ - 200 ⁰⁰	<u>15%</u> OFF LIST
\$201 ⁰⁰ - 500 ⁰⁰	25% OFF LIST
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\$1001 ⁰⁰ - 2000 ⁰⁰	35% OFF LIST
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\$5000 ⁰⁰ - 10,000 ⁰⁰	50% OFF LIST
\$10,000⁰⁰ and up - call for quote	

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